JCT4A5

Journal of Catalysis

LIBRARY USE ONLY

UNIVERSITY OF HAWAII LIBRARY

EDITORS:

P. W. Selwood — *Frank S. Stone*

EDITORIAL BOARD:

Robert B. Anderson
Michel Boudart
Adalbert Farkas
Vladimir Haensel
J. Halpern
J. Horiuti
Maurice L. Huggins
C. Kemball
A. Nielsen
M. Prettre
G. C. A. Schuit
G.-M. Schwab
Z. G. Szabó
W. Trzebiatowski
Paul B. Weisz
M. E. Winfield

Volume 26 · 1972

ACADEMIC PRESS

New York and London

Copyright © 1972 by Academic Press, Inc.

All Rights Reserved

No part of this publication may be reproduced or transmitted in any form, or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the copyright owner.

CONTENTS OF VOLUME 26

Number 1, July 1972

D. L. Trimm and L. A. Doerr. The Catalytic Oxidation of Propylene to Benzene 1

A. J. Goodsel and G. Blyholder. Adsorption of CO_2, COS and CS_2 on Manganese Films 11

H. T. Spath, G. S. Tomazic, H. Wurm, and K. Torkar. The Mechanism of the Action of BaO_2 and $BaCO_3$ as Additives to Silver Catalysts in the Oxidation of Ethylene to Ethylene Oxide 18

D. Ballivet, D. Barthomeuf, and Y. Trambouze. The Isomerization of *cis*-2-Butene over Silica–Alumina Catalysts. I. Study of the Deactivation of Active Surface Sites 34

P. Van der Plank. A Criterion for Detecting Mass Transport Effects on Double Bond Migration During the Hydrogenation of Methyl Oleate Using Nickel-on-Silica Catalysts 42

R. T. K. Baker, M. A. Barber, P. S. Harris, F. S. Feates, and R. J. Waite. Nucleation and Growth of Carbon Deposits from the Nickel Catalyzed Decomposition of Acetylene 51

R. Bouwman and W. M. H. Sachtler. Photoelectric Investigation of the Surface Composition of Equilibrated Pt–Ru Alloy Films in Ultrahigh Vacuum and in the Presence of CO 63

E. Ruckenstein. Thermodynamic Analysis of the Stability of Supported Metal Catalysts 70

Yusuke Yasuda and Kozo Hirota. Evidence for Direct *Cis–Trans* Isomerization of Dideuteroethylene on Nickel Catalyst 75

Baljit Singh Gambhir and Alvin H. Weiss. Depletion of Reactants on a Catalytic Surface During Reaction 82

S. H. Inami and H. Wise. Olefin Hydrogenation Catalyzed by Supported and Unsupported Mixed Metals 92

Jerome A. Roth. Conjugative and Steric Effects on the Ring-Opening of Substituted Phenylcyclopropanes over Palladium Metal 97

F. Morelli, M. Giorgini, and R. Tartarelli. Decomposition of Methanol on Zinc Oxide Pelleted at Various Pressures 106

Robert S. Shue. Reactions of Aromatics and Olefins Catalyzed by Homogeneous Palladium(II) Compounds Under Oxygen 112

J. M. Basset, A. Vidaurre, W. F. Graydon, and H. Praliaud. Kinetics of Irreversible Chemisorption: Surface Reduction of MnO_2 by Cyclohexane Cyclohexene, and 1,3- and 1,4-Cyclohexadiene 118

Kanjiro Matsuura, Takaaki Watanabe, Akira Suzuki, and Mitsuomi Itoh. Catalytic Properties of BF_3-treated Aluminas. V. Vapor-phase Alkylation of Toluene with Ethylene Using BF_3-treated Aluminas 127

Note

D. Cormack, D. A. Poynter, C. J. Burlace, and R. L. Moss. Characterization of Oxide Catalysts by Electron Probe Microanalysis 135

Book Review 139

Number 2, August 1972

J. L. Garnett and A. Rainis. EPR and Chemical Studies of the Heterogeneous Reaction Between Polycyclic Aromatic Hydrocarbons and Platinum Chlorides . 141

L. Forni and S. Carrà. Reaction Network and Kinetics of *p*-Diethylbenzene Cracking Over X-Faujasite Molecular Sieve Catalysts 153

H. T. Spath and K. Torkar. The Mechanism of the Action of Alkaline Earth Compounds as Additives to Silver Catalysts in the Direct Oxidation of Ethylene 163

P. A. Jacobs and J. B. Uytterhoeven. Quantitative Infrared Spectroscopy of Amines in Synthetic Zeolites X and Y. I. Alkylammonium Y Zeolites as Precursors of Acid Hydroxyls in Deaminated Zeolites Y 175

P. A. Jacobs, B. K. G. Theng, and J. B. Uytterhoeven. Quantitative Infrared Spectroscopy of Amines in Synthetic Zeolites X and Y. II. Adsorption of Amines on Na–Hydrogen Zeolites X and Y 191

Mamoru Ai and Sadao Suzuki. The Effect of Bismuth Addition to the Molybdenum–Phosphorus Oxide Catalyst on the Partial Oxidation of Butene, Butadiene, and Furan 201

R. Balaji Gupta, B. Viswanathan, and M. V. C. Sastri. Interaction of Hydrogen and Carbon Monoxide on Cobalt Catalysts. Part I 212

R. Beaumont and D. Barthomeuf. X,Y, Aluminum-Deficient and Ultrastable Faujasite-Type Zeolites. I. Acidic and Structural Properties 218

G. Webb and J. I. Macnab. The Hydroisomerization of *n*-Butenes. 2. The Reaction of 1-Butene over Mercury-Poisoned Rhodium–Silica Catalysts 226

A. O. Cinneide and J. K. A. Clarke. The Exchange with Deuterium and Deuteration of Benzene on Evaporated Palladium–Gold Alloy Films 233

L. Kubelkova and F. Trifirò. Study of Propylene-d_6 and Acrolein Interaction with Silica Gel by Infrared Spectroscopy 242

J. J. Carberry, G. C. Kuczynski, and Enrico Martinez. On the Influence of γ-Irradiation upon Catalytic Selectivity. I. Oxidation of Ethylene over Supported Silver 247

Brian W. Taylor and Harold E. Swift. The Addition of Hydrogen Cyanide to α-Olefins Catalyzed by Nickel (0) Complexes 254

R. A. Schoonheydt and J. H. Lunsford. Infrared Spectroscopic Investigation of the Adsorption and Reactions of SO_2 on MgO 261

Notes

M. B. Cutlip and G. M. Bhatt. Effect of Surface Acidity on Alcohol Dehydration Catalysis by Pyrolyzed Polyacrylonitrile 272

Tatsuaki Yamaguchi, Katsubumi Toujima, and Touru Tsumura. The Effect of Base Strength on the Catalytic Hydrogenation of Certain Schiff Bases with Pentacyanocobaltate 274

Number 3, September 1972

J. H. Anderson. A Study of Water and Ammonia Adsorption on Silica Supported Ni(II) Using Visible and Near Infrared Spectroscopy 277

Andrzej Barański, Adam Bielański, and Agnieszka Pattek. Kinetics of Reduction of Iron Catalysts for Ammonia Synthesis 286

P. Gallezot, Y. Ben Taarit, and B. Imelik. X-Ray Diffraction Study of Cupric Ion Migrations in Two Y-Type Zeolites Containing Adsorbed Reagents . . 295

Tatsuaki Yashima, Keiichi Sato, Tomoki Hayasaka, and Nobuyoshi Hara. Alkylation on Synthetic Zeolites. III. Alkylation of Toluene with Methanol and Formaldehyde on Alkali Cation Exchanged Zeolites 303
A. E. B. Presland, G. L. Price, and D. L. Trimm. Particle Size Effects During the Sintering of Silver Oxidation Catalysts 313
C. E. Pearce and D. Lewis. X-Ray Diffraction Line Broadening Studies of Raney Copper and Nickel 318
H. A. Quinn, J. H. Graham, M. A. McKervey, and J. J. Rooney. Steric Factors in the Exchange with Deuterium of Some Cyclic Hydrocarbons Catalyzed by Palladium 326
H. A. Quinn, J. H. Graham, M. A. McKervey, and J. J. Rooney. Skeletal Rearrangement of Some Cyclic Hydrocarbons Catalyzed by Palladium 333
F. Garbassi, G. Fagherazzi, and M. Calcaterra. Structural Study of the Al_2O_3-Promoted Ammonia Synthesis Catalyst. I. Unreduced State 338
G. Fagherazzi, F. Galante, F. Garbassi, and N. Pernicone. Structural Study of the Al_2O_3-Promoted Ammonia Synthesis Catalyst. II. Reduced State . . . 344
Burton H. Davis. Influence of Pretreatment of Alumina on the Dehydrogenation: Dehydration Selectivity for 2-Octanol 348
P. Ratnasamy and A. J. Léonard. Structural Evolution of Molybdenum Sulfide Catalysts 352
Miki Niwa and Yuichi Murakami. Study on Olefin Oxidation by Periodic-Pulse Technique. I. Propylene Oxidation into Acrolein Using Various Oxide Catalysts 359
J. R. McLaughlin and C. G. Pope. Cracking of *n*-Hexane over NaX and a Series of NiX Catalysts 370
E. F. McCaffrey, D. G. Klissurski, and R. A. Ross. The Effect of the Oxygen Content in a Series of Manganese Oxide Catalysts on Their Catalytic Activity and Selectivity in the Decomposition of Isopropyl Alcohol 380
Huseini Tambawala and Alvin H. Weiss. Homogeneously Catalyzed Formaldehyde Condensation to Carbohydrates. II. Instabilities and Cannizzaro Effects . 388
J. G. Steenhof De Jong, C. H. E. Guffens, and H. S. Van Der Baan. The Oxidative Demethylation of Toluene, Using Bismuth Uranate as Oxidant . . 401
T. P. Kobylinski and H. E. Swift. Selective Disproportionation of Olefins Using Thalliun Treated Molybdenum–Alumina Catalysts 416
U. Schwabe and E. Bechtold. Reduction of Silver Sulfide by Hydrogen Spillover 427
Pinakin M. Shah, Radhe Shyam, and Burton Davidson. Analyses of Nonisothermal Effectiveness Factors Using a Generalized Langmuir-Hinshelwood Rate Expression 432
Michael J. Baird and Jack H. Lunsford. Catalytic Sites for the Isomerization of 1-Butene Over Magnesium Oxide 440
John W. Ward. The Nature of Active Sites on Zeolites. XIII. The Acidity and Catalytic Activity of Magnesium Ammonium Y Zeolite 451
Jin-Liang Wang, H. R. Menapace, and M. Brown. Aluminum Halide Effects on Metathesis of 2-Pentene by a Binary Catalyst System of Tungsten Hexachloride and *n*-Butyllithium 455
G. G. Eberhardt and H. K. Myers. A Catalytic Codimerization of Ethylene and *n*-Butenes by a Nickel Complex in Solution 459
Bernard J. Wood, Horoko Niki, and Henry Wise. Catalytic Dehydrogenation and Oxidation of Propanol-2 on Platinum 465

John W. Ward. The Nature of Active Sites on Zeolites. XIV. The Influence of Alkaline Earth Cations on the Catalytic Activity of Hydrogen Y Zeolite . . 470
C. L. Liu, T. T. Chuang, and I. G. Dalla Lana. The Oxidizing Properties of γ-Alumina: Infrared Studies of the Adsorption of H_2S and CS_2 474

Notes

J. Prasad and P. G. Menon. The Bifunctional Nature of $Cu–Al_2O_3$ Catalysts in the Conversion of Ethanol to Ethyl Acetate 477
P. Gallezot, Y. Ben Taarit, and B. Imelik. X-Ray Diffraction Study of Nickel Ion Migration in Y-Zeolite 481
Kuniaki Watanabe, Takao Hanasaka, and Toshiro Yamashina. Precise Measurement of Adsorption of Active Gases at Very Low Pressures by a Sensitive Pirani Gauge 484
S. J. Tauster. Catalytic Properties of Some Mo_3-Cluster Compounds Prepared in High Surface Area 487

Letters to the Editor

J. Yamanis, R. Vilenchich, and M. Adelman. On the Kinetics of Dehydration of *tert*-Butyl Alcohol Catalyzed by Ion-exchange Resins 490
G. Careri, V. Mazzacurati, M. Sampoli, and G. Signorelli. Raman Scattering from Water Adsorbed on Oxide Surfaces 494
Vincent J. Frilette. Reply to Paper on "Kinetics of Dehydration of *tert*-Butyl Alcohol" 497

Erratum 499

Author Index 500

Subject Index 502